

## EU-India FI MEDIA in Smart Republic 2018, 15-16<sup>th</sup> February, 2018.

**Abstract:** EU-India FI MEDIA was represented by Prof.M.P.Gupta (IIT Delhi) in the Smart Republic 2018 edition organised by World Bank (<http://www.smartrepublic.in/index.html>) on 15-16<sup>th</sup> February, 2018. The Smart Republic initiative is aimed to create a multi-stakeholder partnership and serve as a platform for structured and continuous dialogue among governments, civil society, private sector, and others to jointly develop effective solutions for smart cities and smart villages.



Figure 1 - Prof. MP Gupta, ([https://www.youtube.com/watch?time\\_continue=143&v=swbxixQ39AM](https://www.youtube.com/watch?time_continue=143&v=swbxixQ39AM))

### Theme and Rationale

India is witnessing huge transformations in public service delivery through innovative uses of digital technologies under the remit of the Digital India Agenda. The 100 Smart cities mission, along with AMRUT and HRIDAY Missions, were announced by the Government of India in 2015 with a first list of successful cities to pursue Smart City Challenges announced in 2016. Since then, 90 cities from across the country have been selected for getting support through centre and state governments under the initiative. Additionally, the RURBAN mission was announced for the development of smart village clusters.

All of these missions have received unprecedented interest from multi-lateral agencies such as the World Bank, Asian Development Bank, UN habitat; in addition, multiple countries and industry players have expressed significant interest to be part of this big transformation opportunity. However, each of these players is working in isolation with their independent initiatives addressing the same problems. This is resulting in a multiplicity of efforts and development of disparate systems

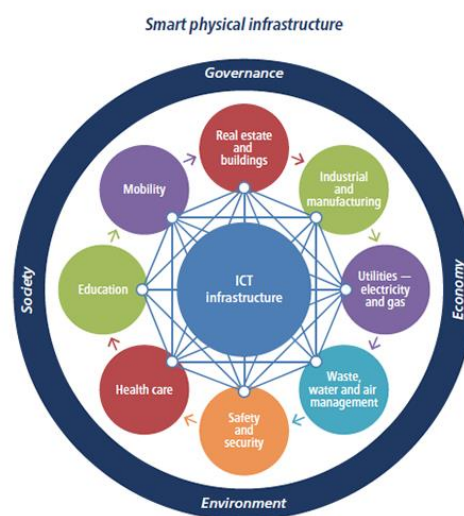
by different cities. These systems are not interoperable and, in the long run, may result in wastage of investment and resources.

In order to address this scenario, Smart Republic 2018 is envisaged as a Multi-Partner global forum to deliberate on the collaboration framework between government and multiple agencies such as the World Bank, UN Habitat, UN Global Compact, Asian Development Bank, Industry and academia for achieving a shared goal of making India a Smart Republic by 2022. The Smart Republic Forum will focus on innovative ICT and New Media platforms and deployment of best practices to catalyse effective, coordinated and results-based implementation of 100 Smart Cities Program, AMRUT, HRIDAY and RURBAN missions to achieve the Sustainable Development Goals (SDGs). The Smart Republic forum aims to strengthen and deepen the collaboration among multiple implementing agencies working in the domains of smart cities and smart villages; fostering knowledge sharing among practitioners of Smart Cities and Smart villages programs to ensure adherence to global standards and good practices for accelerated achievement of Sustainable Development Goals; helping government agencies leverage private sector investment, knowledge and resources through innovative public private partnership models; support deliberations among multiple players to formulate structured mechanisms for improving cross-sectoral integration to accelerate deployment of sustainable smart city and smart village programs; and facilitate sharing of good practices among the Smart City and smart village practitioners for development and deployment of Digital Platforms for transformative interventions across multiple thematic areas.

In his keynote address, Prof.Gupta outlined the following points:

- According to 2014 revision of the World Urbanization Prospects by UN DESA's, 54% people (3.3 billion), lived in urban areas. This number will rise to 66 % by 2050;
- More than 80 % of population in US, UK, Australia & Japan are urban;
- In Japan, 70% of population live in and around Tokyo;
- According to UN report on 'World Cities in 2016', there were 512 cities with at least 1 million inhabitants globally. By 2030, a projected 662 cities will have at least 1 million residents. Cities with more than 10 million inhabitants are often termed "megacities". In 2016, there were 31 megacities globally and their number is projected to rise to 41 by 2030. In 2016, 45 cities had populations between 5 and 10 million inhabitants. By 2030, 10 of these are projected to become megacities and the population of one (Saint Petersburg, Russian Federation) is expected to fall below 5 million.
- In China, 50% of population is urban;
- China is developing 20 mega cities, one of those will be 20 times bigger than Mumbai;
- In India, 31% of population live in cities and trend is increasing;
- Their Contribution to GDP was 45% in 1990; by 2015, it grew more than 60%. It is expected to go up to 75% by the year 2020;
- Top 53 cities of the world with 13.3% population, occupy just 0.2% of the land, and contribute nearly 33% country's GDP.
- As a result, most resources (60-80% energy) are consumed in cities;
- The consequence is that the economic importance comes at a cost which is poor environmental performance.

Irrepressible trends of urbanization led the ITU to coin the term “smart sustainable cities” to highlight concerns about resources, and to incorporate characteristics of both eco-cities and smart cities in 2014. “A smart sustainable city is an innovative city that uses ICT and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects”. We need to think about an integrated approach, running cities as an integrated network rather than a set of individual sectors; It meets the needs of today without sacrificing the ability to meet the needs of future generations. Smart sustainable cities can be assessed using four broad themes: society; economy; environment; and governance (Society means that the city exists for its inhabitants).



**Figure 2 – Smart physical infrastructure**

Functioning smart sustainable cities contain 8 physical infrastructure and service elements:

- Real estate, for example, integrates multiple technologies, such as lighting, safety and renewable energy, and uses intelligent building analytics;
- Industry aims for zero emissions and develops innovative manufacturing techniques;
- Energy companies and utilities run a smart grid and wireless communications;
- Air, water and waste management companies use sensor networks or water information systems;
- Security is provided through video surveillance;
- Medical practices give remote health care and use electronic record management;
- Educational facilities supply world-class digital content and flexible, interactive learning;
- Convenient mobility.

### Issues that need attention are to have:

- a) **Common Vision:** Centre and the state governments should have a common vision. Conflicting and multiplicity of ideas make the things more complicated and there is a need to need to bury differences and share the limited resources available with them.
- b) **Weave integration among various national programs** (Digital India, Make in India, Smart Cities, Clean India, Start India, Skilling India etc.). Earlier programmes such as the National E-governance Plan (*NEGP*) *lacked on several counts viz. 'Common sense approach' vs 'Life event approach'*, Idea of CIO was not envisioned, BPR was not mandated, Enterprise Architecture was not insisted, Security Provisions and required audit were ad-hoc, legal framework dedicated to E-governance was not exclusive, Vertical (Federal/State/District/Local) and horizontal Integration among various mission mode Projects were not envisaged, (Horizontal), Outsourcing was indiscreet, local ownership was not strong, capacity building was inadequate, Project Management Approach was missing, Intelligent Support Systems in the business of government were not thought about, and a comprehensive Portal strategy was not laid down etc.
- c) **Investments:** Need to attract higher investments, for accelerating economic growth; Investors look for quality infrastructure before putting in their money; hence Government of India announced mega programs 'Make in India', 'Digital India'; these will prove a big boost to economic investment & growth.
- d) **Quality of infrastructure: The Quality of Infrastructure** is questionable in absence of sustainable real estate, communications system, Energy, water, transport, security and waste management systems. So, is the Smart City project is far cry?
- e) **Satellite Towns & Rural sides:** Development should be in tandem- city, towns & Villages. Improving city landscape will enhance migration, adding further challenge. Hence it is necessary to add on smart layer among small town and make village life equal partner in smart city agenda. Hence India may have to think developing not 100 but smart 500 cities living attractive. From economic perspective, smart technology can be explored how it augments commercial activities positively.
- f) **Digital Village vs Smart Village:** Idea of smart system laying over the digital landscape. A Digital Village is conceived to have computing layer while smart village is conceived to be laid out over that. Three (3) Key Areas were found part of digital Village, including **3 Cs**
  - C1 Connectivity (refers to Digital Connectivity);
  - C2 Content (refers to Digital Services);
  - C3 Capacities (refers to Digital Literacy)**+ 2 Cs**
  - C4 Collaborating;
  - C5 Co-creating.
- g) **Tech infrastructure: The backbone of infrastructure, high-speed broadband connectivity, cloud** intelligent energy, water, transport, security and waste management systems, video surveillance networks, emergency healthcare.
- h) **People's Participation:** Intelligence of the people and not the smartness of the technology can determine the smartness of the city. Therefore, people should be at the forefront of the development of the city. Urban poor should be included in the process; not just use for

building the city and then forced to leave. People need to be made smart to demand and utilise the services.

- i) **Liveability:** Provide safety, security, sustainability and energy efficiency at affordable cost; provide conducive environment so that people develop emotional attachment. Proper facility for working women is essential as working women face many challenges.
- j) **Waste Management:** This should be decentralised in smaller recycling plants. For sewage as well as solid waste there should be recycling units within every one km radius. It will help save energy, reduce pressure on road traffic and improve sanitation and cleanliness.
- k) **Energy Supply:** Renewable power sources should be tapped to ensure 24x7 power supply. Rooftop solar panels should be installed to bridge the gap of energy supply from conventional sources. Moreover, it will ensure uninterrupted energy supply required for some essential services.
- l) **Land:** Land acquisition is a big challenge. If the existing cities or satellite towns are to be transformed into smart cities, what will be the land acquisition strategy for development and expansion of infrastructure? In the case of green-field projects, the challenge is even larger. . Land acquisition is currently in the concurrent list. I.e. central government has one law, while state governments can have their own laws. This creates confusion and leads to unnecessary delays. Land acquisition should be brought fully under the purview of the states. Efforts should be made to reduce indirect cost and increasing direct cost of land acquisition. Direct costs are the money paid to the farmers or the land owners, while the indirect costs are the expenses incurred in the process due to delays and bureaucratic hurdles etc. If land owners are compensated adequately, their opposition to land acquisition for infrastructure and city development will go. The Land acquisition norms should be simplified and more powers should be given to the District heads/ collectors. Under the present law everything goes to chief secretary, which is not necessary.
- m) **Urbanisation Strategy:** Urbanisation in India is often seen as a by-product of failed regional planning. People migrate to towns and cities because they don't find basic facilities, proper infrastructure and jobs in rural areas. There is hardly any policy framework, either at the Centre or at the state level, for planned urbanisation. For higher economic expansion and development of the country, urbanisation is inevitable. There is need for a proper planning and clear strategy both at the centre and the state level to promote and facilitate urbanisation in a way, which is best suited for the economy.
- n) **Single data portal:** As per Planetary Defense Conference recommendation:
  - Internet is a powerful medium of communicating & sharing;
  - Have dedicated portal to show how threats evolve and to illustrate possible action scenarios;
  - In the long run it can become a central platform for the forming of the planetary defense system in the future;
  - This system will be responsible for the worldwide warnings and protection actions to encourage international cooperation;
  - Educate governmental officials and public on the nature of threats;
  - Mechanism for direct communication between scientific community and policy makers;
  - It will be helpful for international scientific organizations in exchange of research data and forthcoming events;
  - There are many websites but the problem is they are not integrated and it takes too much effort to access them;
  - Reliable and objective information from scientific organizations or space agencies is often not clear to the public;

- A non-specialist cannot apprehend huge amounts of information and evaluate its credibility;
- Therefore there is a strong need for a unified, easily accessible, and competent source containing specific, relevant, and consistent information and a universal database;
- The single data portal will unite the existing Internet resources and carry out the function of a search system, a monitoring centre, and a social platform;
- That will significantly facilitate the process of searching for information and working with it;
- It will stimulate public interest in the planet safety issue and increase public awareness, which in turn will increase the level of public support;
- Features for news day-to-day updates from media in English and other languages, including news, press releases, etc.;
- Publish digital versions of articles from scientific magazines;
- Have a place for video interviews with experts;
- Make available abstract and links of reports from international organizations;
- Access to research reports by scientific institutes and social organizations;
- Access to multimedia materials [impact events, including presentations, videos and photos];
- Display of future events;
- Single portal may be pursued under UN cooperation.

**o) Sharing of Best Practices:** This is about following Project Management Book of Knowledge (PMBOK), identify Best practices and make it a law.



**Figure 3 – MP Gupta, Dhananjaya Chair, Professor & Head Dept. of DMS at IIT Delhi, India**

p) **Use of the EU developed FIWARE open source platform<sup>1</sup>**: Professor MP Gupta presented the work undertaken as part of an EU - India Cluster to Cluster (C2C) partnership on *Bringing the FIWARE platform to the India context*, which has been quite successful in the last two years, as a result of the support of the EU-India FI-MEDIA project<sup>2</sup>, which is funded by the Delegation of the European Union to India and Bhutan<sup>3</sup>. The C2C partnership has highlighted a number of important elements on the use of the FIWARE open source platform for smart cities and smart villages in India, including:

- Public services data of the citizens or infrastructure **has to be hosted on Indian servers**.
  - The way to enable this requirement would be to set up a FIWARE Lab node in India for pilots and trials and a commercial FIWARE node for productive usage. Already, an academic node has been established in PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur IIIT (see chapter 6 of this Yearbook of success) and a number of FIWARE Platinum members, such as Orange and Atos have large operations in India and are already addressing the India Smart City market. But it is also open for Indian companies like Tata, HCL, and others. At the M2M + IoT Forum in January, 2018, it was announced by the CEO of the FIWARE Foundation, Mr. Ulrich Ahle, that Mobilepedia Innovations<sup>4</sup> is the first India-based Gold member of the FIWARE Foundation. See chapter 14 of this Yearbook of Success.
  - Ownership of all the smart cities projects should have support available to ensure 24/7 operation. This may not be manageable if experts are sitting outside the country. It would be expensive also. Mission critical applications can only be run on a system with guaranteed SLAs on performance, maintenance support and availability. In other countries there are already commercial FIWARE instances with professional SLA's. Same can be set up in India (see above). As FIWARE was born in Europe, we need to transfer the know-how to the local market in India. Simply looking at the difference in labour cost it will not be possible to serve Indian clients and cities from Europe.
- FIWARE viability has to be established by pilot projects to start with and this cost has to be borne by the solution providers (FIWARE vendors in this case):
  - Depending on the availability of open data in the cities, it is possible to create nice applications based on the large functionality of FIWARE. This is one of the major advantages of FIWARE: portable and interoperable solutions.
- Clarity on a financial model for using FIWARE: If the pilot succeeds, the cities will also need to have a clear understanding beforehand on the cost implications of scaling this up to an entire city.
  - This important aspect needs to be discussed as it depends on the business model. If there is no business case, it will be difficult to justify;
  - FIWARE is open source and available for everyone;
  - It is very efficient to create and operate applications based on the Generic Enablers (GEs) or to re-use existing solutions.
  - Some or the solutions need a payment and also the integrations services and providing the SLA's will need payments, which require a concrete business case.

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<sup>1</sup> <http://www.fiware.org/>

<sup>2</sup> <http://www.bic-fimedia.eu/>

<sup>3</sup> <http://eeas.europa.eu/delegations/india>

<sup>4</sup> <http://www.mobilepedia.in/>

**q) Disaster Management:** Disaster is phenomenon where cooperation is vital for its efficiency and effectiveness. Last years' experience of Gurgaon Flood is a lesson to learn from. The main challenge is coordination among various agencies locally and globally [Government-Military & others, NGOs, Community groups (social & religious both) and International Volunteer organization]. ICT can play a big role in disaster management; for example:

- (Sensor networks developed by CDAC for Flood Monitoring system in Brahmaputra river)
  - Special system requirements.
    - Emergency Operation Center;
    - Communications;
    - Warning Systems;
    - Survey & Assessments;
    - Information Management;
    - Emergency Logistics.
- Policy may be an issue (Limit on number of sms's);
- Adopt best practices from global sources (EU, US, Japan, Russia, etc....);
- Single portal may be pursued under UN cooperation

**r) Research :** There is a need to encourage research investment into some unique areas, such as:

- Rare Event Simulation:
  - Howra/Pumban/Brooklyn bridge will fall;
  - probability of collision of two aircrafts;
  - probability of a nuclear breach;
  - Probability of attach on parliament;
  - Probability of Grid failure in Dadri;
  - Probability of Qutub Minar falling.
- Risk & hazard assessment and invest into such and related research;
- Define large joint research projects to foster global collaboration (EU, India, US, Japan).